CLAIMS

We claim:

1. A method for extending the viability of mammalian cells or tissues comprising the step of inhibiting the expression of native PL scramblase within the cell or tissue.

2. The method of claim 1 wherein the inhibition is *in vitro*.

3. The method of claim 1 wherein the inhibition is *in vivo*.

4. The method of claim 1 wherein the mammalian cell or tissue is selected from the group consisting of a blood cell stored for transfusion, a hematopoietic stem cell, an endothelial cell, a pancreatic islet cell, a blood vessel, a skin or other tissue graft, or solid organ for transplantation.

5. The method of claim 1 wherein the inhibition is via a PL scramblase antisense RNA molecule.

6. The method of claim 1 wherein the cell or tissue is a human cell or tissue.

7. The method of claim 1 wherein expression is inhibited via a mutant or truncated form of PL scramblase protein that is inhibitory to endogenous PL scramblase protein.

8. The method of claim 7 wherein the truncated form of the protein is the translation product of an alternatively spliced PL scramblase mRNA.

9. The method of claim 7 wherein the mutant PL scramblase contains one or more non-conservative substitution of residues in the Asp^{273}-to-Asp^{284} region of PL scramblase polypeptide.

10. The method of claim 1 wherein the function of cell PL Scramblase is inhibited by preventing fatty acylation of the nascent PL scramblase polypeptide.

11. The method of claim 1 wherein the function of cell PL scramblase is inhibited by deacylation of the mature PL scramblase protein.

12. a method of decreasing the viability, metastatic or invasive potential of cancer cells, cancerous tissue, or viral-infected cell by causing increased expression or activity of PL scramblase protein within the cell or tissue.

13. The method of claim 12 wherein the cancer cell represents a leukemia, lymphoma, carcinoma, adenoma, sarcoma, or other transformed cell type with oncogenic, metastatic, or tumorigenic potential.

14. The method of claim 12 wherein the cell is infected with a human retrovirus, human leukemia virus, human adenovirus.

15. The method of claim 12 wherein the cancer cell, cancerous tissue or viral-infected cell is transfected to express an exogenous PL scramblase coding sequence.

16. The method of claim 12 wherein the cancer cell, cancerous tissue or viral-infected cell expresses exogenous PL scramblase protein.

17. The method of claim 12 wherein the cancer cell, cancerous tissue or viral-infected cell is within a human patient.

18. The method of claim 12 wherein the increased expression of PL scramblase protein is achieved by decreasing expression of alternatively spliced transcripts of PL scramblase within the cancer cell, cancerous tissue or viral-infected cell.

19. A method of determining the status of a patient's cancer comprising the steps of analyzing the level of PL scramblase RNA or PL scramblase protein within cancer cells and correlating the level with a standard curve.

20. A method of diagnosing metastatic and invasive potential or growth potential of a cancer cell or cancerous tissue comprising the step of analyzing the amount of PL scramblase RNA or protein within a patient's cell sample.

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21. The methods of claims 19 or 20 wherein the level of PL scramblase RNA is measured by *in situ* hybridization or Northern blotting with PL scramblase cDNA or by the polymerase chain reaction using oligonucleotide primers based on sequence of human PL scramblase cDNA.

22. The method of claims 19 or 20 wherein the level of PL scramblase protein is measured by immunofluorescence, flow cytometry, Western blotting, radioimmunoassay, or by ELISA assay using antibody that specifically binds PL scramblase protein.

23. A method for inducing apoptosis in a cell comprising the step of increasing expression of PL scramblase within the cell.

24. The method of claim 23 wherein the increase in PL scramblase expression is by activating the promoter of an endogenous PL scramblase gene.

25. The method of claim 23 wherein the increase in PL scramblase expression is by transfection of the cell with cDNA encoding PL scramblase.

26. The method of claim 23 wherein the cell is part of a tissue.

27. A method of diagnosing metastatic and invasive potential or growth potential of a cancer cell or cancerous tissue comprising the step of analyzing the sequence of a patient's PL scramblase gene, RNA or protein for the presence or absence of mutations.

28. The method of claim 27 wherein the analysis comprises techniques selected from the group consisting of RFLP, sequencing by RT-PCR, Northern blotting, Western blotting, electrophoretic gels, protease digestion and other techniques designed to analyze DNA, RNA or protein sequence.

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